

COUNCIL
ON
COMPETITIVENESS



COMPETITIVENESS
INDEX
1992

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PREFACE

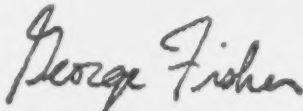
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With the end of the Cold War, the *economic* agenda has vaulted to the forefront of the political debate. It is becoming more and more apparent that economic strength is crucial not only to a rising standard of living at home, but also to a nation's power and prestige around the world.

The 1992 Presidential election provides an opportunity to begin to think of economic issues in strategic terms. As we move into the last few months of the campaign, both parties are striving to articulate a clear national economic program that will relieve the recession at home and strengthen America's competitiveness abroad. The urgency of their response is driven by public opinion.

This year, we ask Americans to look carefully at the *Competitiveness Index* as they attempt to determine the priority actions facing government. And we ask them to urge each candidate to outline specific proposals to enhance U.S. economic performance in each of the four areas the *Index* covers: investment, productivity, exports, and standard of living. Our performance in each of these categories is closely linked to the others. If we are to strengthen America's performance at home and abroad, we must improve our performance in each area, with a clear recognition that it, in turn, will have a favorable impact on the other three.

The stakes are high. The time for action is now. We hope that this year's Index will help voters understand the issues we face in a global economy and translate their views into political action.



George M.C. Fisher
Chairman
Council on Competitiveness

SEPTEMBER, 1992

INTRODUCTION

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Since its first release in 1986, the *Competitiveness Index* has served as a valuable summary of U.S. competitiveness in the global economy. The Index measures U.S. performance in two ways: relative to its own past performance; and, perhaps even more importantly, relative to its chief industrial competitors — Canada, France, Germany (data for Germany is for western Germany only), Italy, Japan, and the United Kingdom (a group of nations that is also known as the "Group of 7" or "G-7").

THE PYRAMID

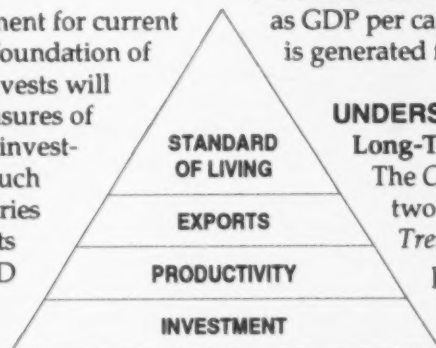
The *Competitiveness Index* uses four economic indicators to assess U.S. competitiveness: investment, productivity, trade (exports), and standard of living. The linkages among these indicators can best be understood by looking at the "competitiveness" pyramid to the right.

INVESTMENT, as the core requirement for current and future economic activity, is the foundation of the pyramid. How much a nation invests will ultimately affect our other three measures of competitiveness. Our index defines investment to include both "hard" assets such as private sector expenditure on factories and equipment, as well as "soft" assets such as non-defense spending on R&D and public sector expenditure on education.

MANUFACTURING PRODUCTIVITY is largely determined by the quality and performance of the workforce, technological innovation, the quality of plant and equipment, and the efficiency with which these "factors" of production are organized. We focus on manufacturing productivity because manufacturing accounts for about one-fifth of U.S. output and the bulk of U.S. trade. A strong and productive manufacturing base also underlies the success of other sectors, such as services. Finally, the data for services is not as consistent and as reliable as that for manufacturing. The *Competitiveness Index* assesses manufacturing productivity as Gross Domestic Product (GDP) per employee in the manufacturing sector.

EXPORTS make up the third tier of the pyramid. Although exchange rates affect the near-term price competitiveness of exports, over the long-term exports are directly influenced by the quality, price and availability of goods. Exports are a good indicator of a nation's ability to compete in world markets, and the production of competitive, tradeable goods is in turn dependent on high rates of productivity and adequate investment in new and better products and processes of production. The *Competitiveness Index* measures export performance as the U.S. share of world manufactured goods exports.

STANDARD OF LIVING occupies the top tier of the competitiveness "pyramid" because it is the ultimate goal of an economy. The whole point of a nation's being internationally competitive in the global marketplace is to raise living standards for the citizens at home. Standard of living is measured as GDP per capita and reflects how much income is generated for every American.



UNDERSTANDING THIS REPORT

Long-Term Trends

The *Competitiveness Index* is made up of two pieces. In the first piece, *Long-Term Trends*, U.S. performance in investment, productivity, exports, and standard of living are compared both relative to past American performance and relative to America's G-7

competitors. Each of our four competitiveness indicators features a comparison of the latest year growth (from 1990-1991 unless otherwise noted) and a long-term growth chart (from 1972 to 1991 unless otherwise noted). In addition to these two charts, other charts are included for each indicator to provide supplemental information.

The Council on Competitiveness uses 1972 as its base year because it was the year before flexible exchange rates were introduced and before oil shocks fundamentally changed the international economy. As noted, these charts also compare U.S. performance with its chief competitors. Whenever

the term "Other G-7" is noted, it is used to refer to an *average* for all the G-7 countries *excluding* the United States.

There are several ways to present comparative international economic data. We use three forms of data presentation in the *Long-Term Trends* section:

(1) *Nominal dollars*: For some indicators (investment and export performance) we cite current dollar figures in our text in the *Long-Term Trends* section. Current dollar data are the most straightforward and simple way of presenting data; they are frequently cited in the press and are the figures with which most people are familiar.

(2) *Real dollars*: By using a fixed year exchange rate for a historical series of data, we get a picture of the underlying "real" growth rate over time. In the *Long-Term Trends* section, we use data that is calculated in 1985 prices and exchange rates for all the G-7 countries. Our adjusted "real" trend charts are useful in showing convergence in performance over time between the other G-7 countries and the United States.

(3) *Purchasing Power Parities*: Purchasing Power Parities (PPPs) are a shorthand way of expressing the buying power of foreign currencies in their home markets relative to the buying power of the U.S. dollar in America. We use the Organization for Economic Cooperation and Development's (OECD) annually adjusted PPPs, which measure how much it costs to buy a standard basket of goods and services in different countries relative to how much the same basket costs in the United States. The PPP goods and services basket is periodically updated to account for changes in consumption patterns over

time, with the latest basket of goods reflecting 1985 purchasing patterns. We use nominal PPPs (current prices in PPPs) to show current level differences in investment, productivity, and standard of living.

It is important to realize that PPPs can only be used to show differences in *current levels* of performance among countries. They *cannot* be used to make growth rate comparisons of real output over time. The reason PPPs cannot be used to make comparisons of real output growth over time is that the PPP converted data still contains an element of inflation, as well as change in output quantity.

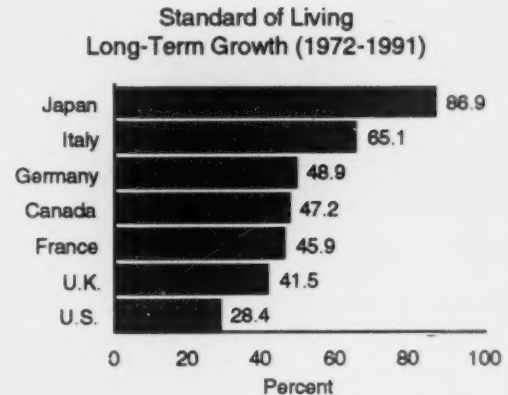
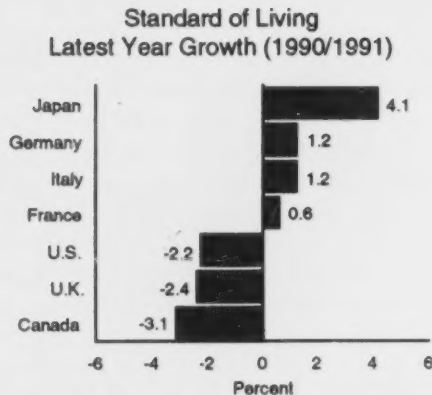
The Index

In the second half of the report, we present the actual competitiveness *Index*. The *Index* is simply another way of stating the information presented in the *Long-Term Trends* section of the report. The Council uses 1972 as its base year to measure the changing relative competitive position of the United States in each of the four indicators surveyed over time. The index for 1972 is set at 100. A rise in the index over 100 means that the United States has outperformed the other G-7 nations since then; a drop in the index below 100 indicates that the other countries in the survey have outperformed the United States.

To maintain consistency, constant 1985 dollars are used exclusively in the index. The term "Other G-7" is used to describe the average for all the Group of 7 countries excluding the United States. All of the data used in the *Index* come from the OECD. A complete description of methodology and a full set of the data is available from the Council on Competitiveness. The WEFA Group provided technical assistance in the initial construction of the *Competitiveness Index* and subsequent revisions.

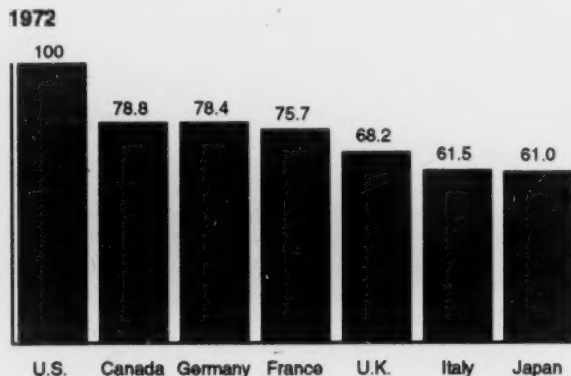
LONG-TERM TRENDS

STANDARD OF LIVING

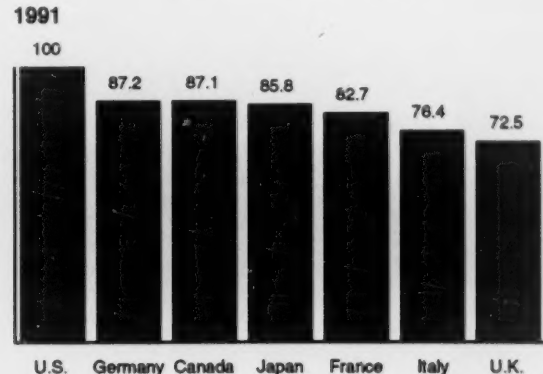


- **Recession takes its toll in 1990/1991:** U.S. living standards dropped again in 1991, falling for the second year in a row after nearly a decade of growth in the 1980s.
- **U.S. declines echoed in Canada and the U.K.:** The other Anglo-American economies — the United Kingdom and Canada — also registered declines in their living standard in 1991, dropping 2.5 percent and 3.1 percent, respectively.
- **U.S. has slowest long-term real growth of all G-7:** Real GDP per capita grew about 28 percent over the past 19 years in the United States, whereas the average for the other G-7 was 63 percent. The U.S. standard of living grew more slowly than any other G-7 country. Over the same period, Japan and Italy had the fastest growing living standards, rising 87 and 65 percent, respectively.

G-7 GDP/Capita Compared with U.S. GDP/Capita
(nominal PPPs) U.S. = 100



G-7 GDP/Capita Compared with U.S. GDP/Capita
(nominal PPPs) U.S. = 100



- **How much longer will the U.S. lead?** Slow U.S. growth over the past two decades explains why even though the buying power of national income generated by each American is still the highest of all the G-7 nations, the U.S. GDP per capita advantage is eroding.

STANDARD OF LIVING

In 1972, U.S. GDP per person (adjusted for purchasing power parity) was \$5,750 — about 21 percent more than the next highest country, Canada. In 1991, U.S. PPP-adjusted GDP per capita was about \$22,460. Although still about 13 percent higher than the next ranking country, Canada, the U.S. margin of leadership has shrunk. The two charts above show that the standard of living gap between the United States and the other G-7 countries is narrowing.

- **Japan and Italy are big gainers:** Over the past two decades, the biggest gainers relative to the United States were Japan and Italy. In 1972, Italy's GDP per capita (adjusted for purchasing power) was almost 40 percent below the U.S. level; by 1991 it was 24 percent below the U.S. level. Japan's standard of living has raced ahead even more dramatically. From having had the lowest standard of living of the G-7 in 1972 (less than a third of the U.S. level), by 1991 Japan's PPP-adjusted GDP per capita had pushed up to levels just under Germany and Canada and less than 15 percent below the U.S. level.

IN PERSPECTIVE STANDARD OF LIVING

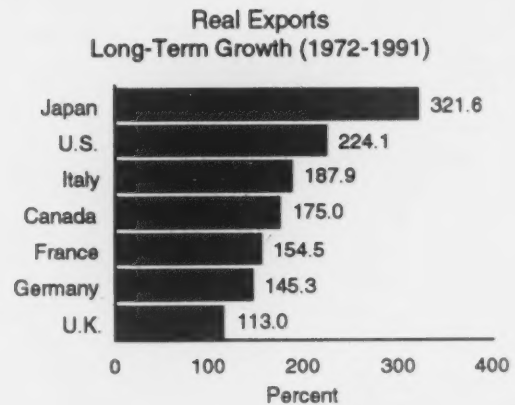
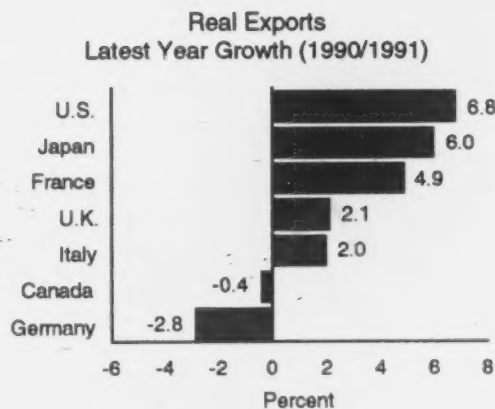
Some of the rapid rise in living standards by the other G-7 countries can be explained by "catch up" — i.e., having risen from a much lower base in the post-war period, these countries experienced an economic surge. Some will argue that this surge will eventually plateau, much as U.S. growth has leveled off over the past two decades. However, the theory that advanced economies' rates of growth will tend to converge over time should not cloud the fact that some of the fast-rising industrial economies have become very productive and innovative in their own right, with aggressive investment and export strategies. A rapidly rising standard of living depends on strong investment, innovation and product development, a productive workplace, and aggressive marketing.

The two "standard of living" measures we use in this section (real GDP/capita growth and PPP-adjusted nominal GDP/capita) attempt to capture some essential aspects of "standard of living": how much national wealth is created and available to each citizen; what kind of buying power that income has; and how rapidly national wealth is growing relative to other countries. Our measures do not take into account other "quality of life" aspects, such as the availability of specialized goods and services; infrastructure; technical and social innovation; safety; cost and access to healthcare; employment levels; opportunity; and international prestige and power.

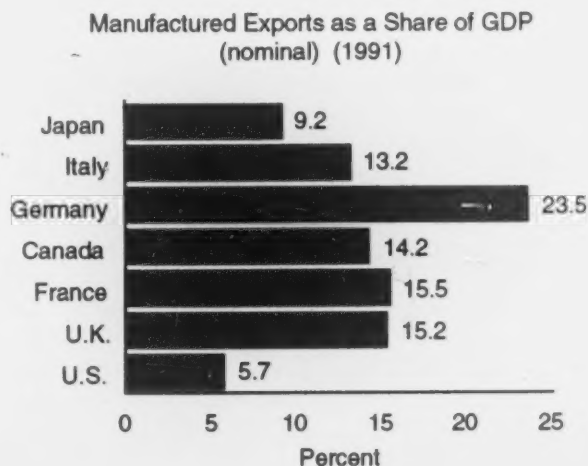
On the positive side in the United States, inflation is low; housing is on average (relatively) affordable and spacious; food is inexpensive. Opportunity, defined by cultural, social and political freedoms, is great. America continues to be a worldclass scientific and social innovator and carries the mantle of major world power. On the other hand, there are some negative aspects of the U.S. quality of life: Violent crime and social unrest are major problems. Our education system is turning out too many ill-prepared workers. U.S. core infrastructure is undermaintained and sometimes inadequate in many urban areas and other parts of the country. Healthcare is expensive compared with other countries and not always available to many individuals. In economic terms, U.S. unemployment has increased in the past two years and the United States has been the world's largest debtor for several years now.

These kinds of qualitative aspects of life are useful in describing standard of living. Nevertheless, wealth creates opportunities and (in a democracy) signifies money that the public sector can spend on improving the national quality of life as well as providing wealth to individual citizens. As such, a simple measure of standard of living that assesses how much national income accrues to each American is a good shorthand for estimating "quality of life."

EXPORTS

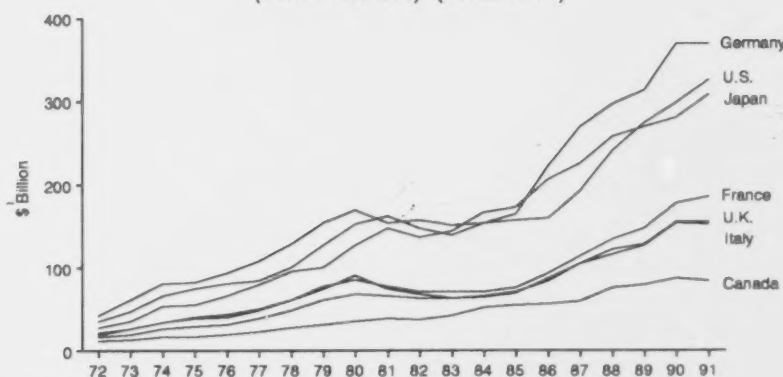


- **U.S. export boom:** A favorable exchange rate, improved competitiveness of U.S. products, and strong growth overseas spurred a U.S. export boom starting in 1986/87. Since then, exports have grown 83 percent in real terms. This pace is two and in some cases three times that of any of the other G-7 countries.
- **Strong U.S. export growth since 1972:** Since 1972, U.S. manufactured goods exports have grown 224 percent in volume terms. This compares very favorably with most of the other G-7 countries, whose long-term export growth averaged 167 percent. Japan is the outlier, where exports have grown by 322 percent since 1972. Germany's export growth was actually on the low end at 145 percent — higher only than the United Kingdom's 113 percent long-term growth.
- **Even with strong growth and recent boom, U.S. exports as share of GDP lags other G-7:** U.S. manufactured exports as a share of GDP continue to lag all of our G-7 competitors. Most of our G-7 competitors export at least twice the share of GDP as the United States; and, Germany — which exports nearly a quarter of all the manufactured goods it produces — exports almost four times the share of GDP as the United States.



EXPORTS

Manufactured Goods Exports (FOB)
(current dollars) (1972-1991)



- **Germany again claims top exporter slot.** In 1991, the United States claimed a nominal world export share for manufactured goods of 12.4 percent, compared with Germany's 14.1 percent share. Japan held the third largest world export share with 11.8 percent.

In current U.S. dollar terms, Germany's exports translate into \$369 billion, with the United States coming in second at \$326 billion, and Japan in third place at \$301 billion.

IN PERSPECTIVE

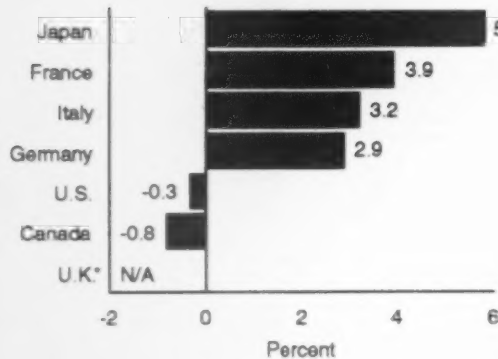
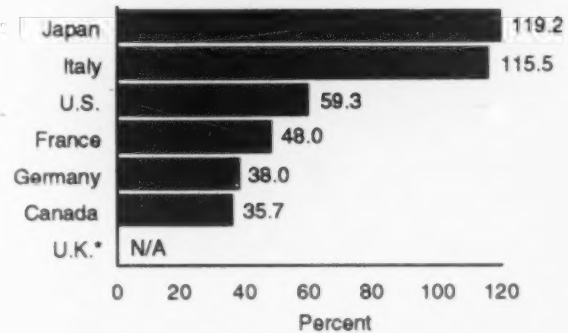
TRADE

The last year in which the United States had a trade surplus was 1975. The mid-1980s were the worst years with trade deficits regularly exceeding \$100 billion (with a high of \$157 billion in 1987). Even though 1991 closed with a relatively small current account deficit of \$3.7 billion, imports continued to exceed exports by \$73.4 billion. U.S. manufacturing imports as a share of U.S. manufacturing output have risen in real terms from 10 percent in 1972 to 34 percent in the late 1980s.

Imports are not necessarily bad. Price and quality-competitive imports can benefit both consumers and producers alike. The problem arises when imports chronically supplant domestic production in whole industries, particularly in knowledge-intensive, high value-added, high-earning job sectors of the economy. The loss of jobs and whole industries hurts the entire economy, ultimately affecting U.S. living standards. There is also a sense that the domestic ability to produce certain kinds of high tech goods is a matter of national security and prestige.

On the other side of the trade equation are exports. Exports are critical to generating national wealth, which can in turn be used to invest further in industry and to improve public infrastructure, as well as to contribute to a rising standard of living for American workers. Although it is rational for U.S. industry to focus on its large and prosperous home market (the world's largest and wealthiest nation), U.S. firms still have not yet fully tapped their export potential relative to other G-7 economies (see exports as a percent of GDP comparisons above). Indeed, only a relatively small number (15 percent) of U.S. exporters account for 60 percent of all U.S. exports. U.S. export promotion policies are critical to building up U.S. export presence, as are a stable exchange rate policy and most fundamentally, increasing the competitiveness of U.S. firms and the goods they produce.

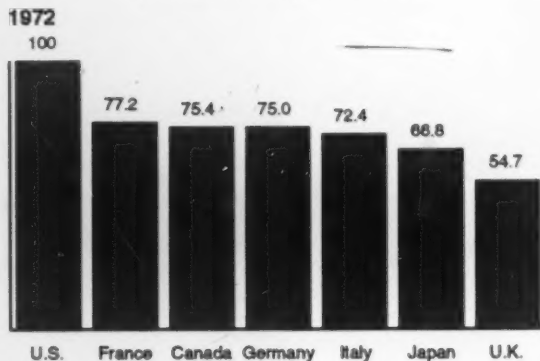
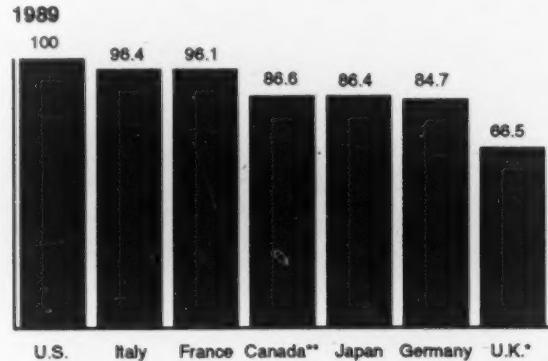
PRODUCTIVITY

Manufacturing Productivity
Latest Year Growth (1988/1989)Manufacturing Productivity
Long-Term Growth (1972-1989)*

*The latest year for which U.K. data is available is 1987.

*Manufacturing productivity real growth for the U.K. was 55.7 percent through 1987.

- **End of '80s roll:** In the latest year for which data is available (1988/89), manufacturing productivity rose briskly in Japan, Germany, France, and Italy but declined somewhat in the United States and in Canada. U.S. productivity had picked up considerably during the 1980s, following a very sluggish period in the 1970s.
- **U.S. long-term productivity growth is about half relative to best competitors:** Although average U.S. manufacturing productivity levels are by many measures still higher than in any of the other G-7 countries, real long-term U.S. growth in manufacturing productivity was less than the 71 percent average for the Other G-7. The high G-7 average long-term growth rate primarily reflects the extraordinary performance of Japan and Italy, where productivity grew over 110 percent since 1972. These two countries experienced strong productivity growth in both the 1970s and 1980s, whereas most of the productivity growth in the United States occurred in the 1980s.

GDP/Manufacturing Employee
(nominal PPPs) U.S.=100GDP/Manufacturing Employee
(nominal PPPs) U.S.=100

* 1987

** 1988

PRODUCTIVITY

- **U.S. still most productive, but gap closing:** In 1972, each American manufacturing worker was able to produce \$14,040 (PPP-adjusted) worth of goods. The next highest country, France, had productivity levels that were about 23 percent lower than this. The least productive country at the time (the U.K.) had productivity levels that were 45 percent below U.S. levels.

By 1989, several of the G-7 countries had made big gains on U.S. productivity levels, with Japan and Italy leading the pack. In 1989, each American worker in the manufacturing sector produced about \$44,610 worth of goods. This was only slightly more than the next highest country, France. From 1972 to 1989, productivity levels in Italy and Japan soared from among the lowest in the G-7 to among the highest. Although Canada and Germany also made some gains over this period, they were relatively small compared with Japan's and Italy's.

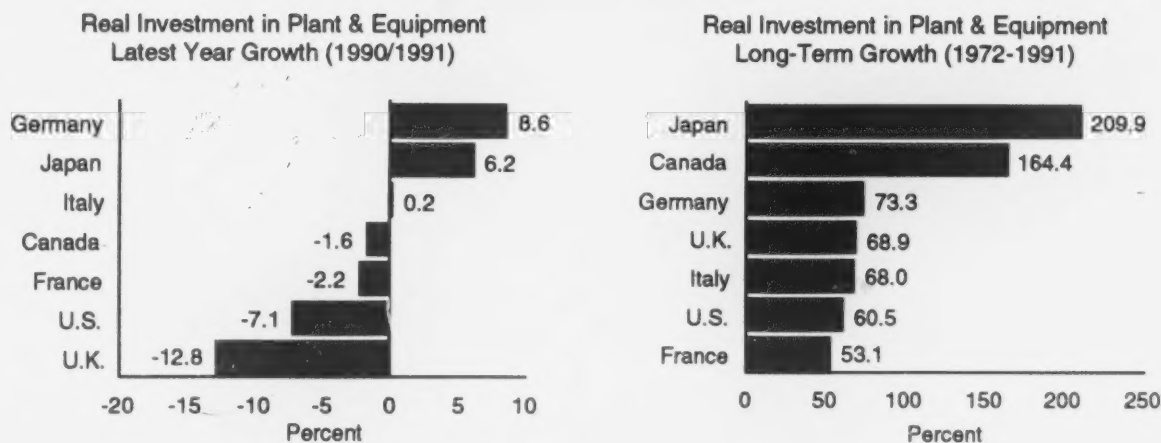
IN PERSPECTIVE PRODUCTIVITY

Another measure of manufacturing competitiveness is unit labor costs. By this measure, the United States appears competitive, having the lowest unit labor cost of the G-7 countries on a dollar basis. This is due in part to the weak dollar, which makes U.S. products more competitive.

Despite positive U.S. productivity performance in the 1980s (measured either as GDP/manufacturing employee or in terms of unit labor cost), productivity growth alone does not help a nation if it is accompanied by the loss of well-paying jobs. Over the period 1980-1991, 1.98 million manufacturing jobs were lost in the United States and manufacturing remained essentially stagnant as a share of GDP. The improvement in U.S. manufacturing productivity in the 1980s corresponded with a weak performance in manufacturing investment relative to the past and relative to the other G-7 countries (especially Japan). U.S. productivity gains were partially accounted for by the closing of aging and largely obsolete facilities, a process sometimes described as shedding fat rather than adding muscle. It has also been argued that some of the observed increases in U.S. productivity from 1985-1989 are in part the result of statistical overestimations of the quality change attributable to computers.

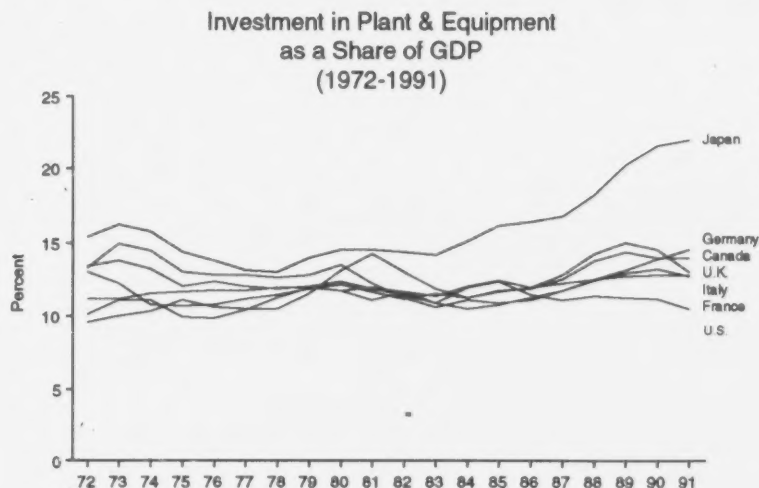
Although growing modern economies exhibit a normal tendency to move towards a service economy, a strong and productive manufacturing base is essential to preserving the economic vitality of a country. Without a strong manufacturing base, a service-based economy will not thrive over the long term. Regular improvement in manufacturing productivity is key to a competitive, prosperous economy.

INVESTMENT Plant and Equipment



- **U.S. investment growth among slowest.** From 1972-1991, Japanese investment grew almost 3.5 times as much in real terms as in the United States. Of all the other G-7 countries, only France has had slower investment growth over the past twenty years than the United States.

From 1990-1991, U.S. investment declined about 7 percent in real terms. This stands in contrast to Germany and Japan, where investment grew by 9 and 6 percent, respectively.



- **U.S. investment in last place.** In 1991, U.S. investment in plant and equipment hit a 14-year low, sinking to 10.5 percent of GDP (down from 11.1 percent in 1990). But even worse news is that the United States invested a smaller share of GDP in plant and equipment in 1991 than *any* other G-7 country. This last place position has been in effect since 1987.

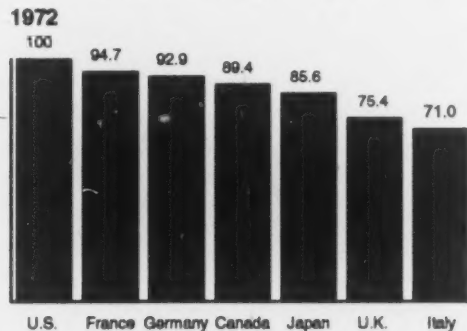
In 1991, U.S. investment in plant and equipment as a share of GDP was half that of Japan's 22 percent and substantially below Germany's 14.5 percent GDP investment share.

INVESTMENT Plant and Equipment

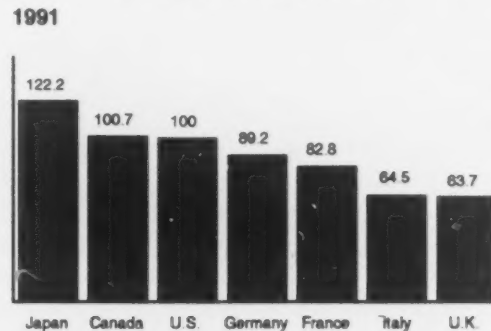
- **Dollar-for-dollar comparison with top challenger.** Using current exchange rates, in 1991 the United States invested \$541.1 billion in plant and equipment, compared with the \$662.0 billion invested by Japan. Japan's economy is about 60 percent the size of the U.S. economy.

If we convert these investment amounts into purchasing power parities to take into account that plant and some equipment cost more in Japan than they do in the United States, Japan's investment in plant and equipment in 1991 came to 60 percent of U.S. levels. Nevertheless, Japan's GDP (when adjusted for PPPs) is only 42 percent that of the United States, leaving Japan with a much higher investment-to-GDP ratio.

Investment per Capita – Plant & Equipment
(nominal PPPs) U.S.=100



Investment per Capita – Plant & Equipment
(nominal PPPs) U.S.=100



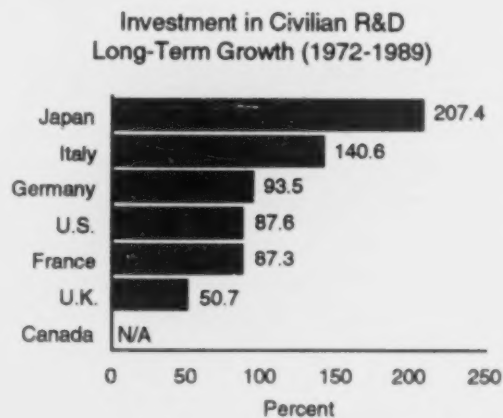
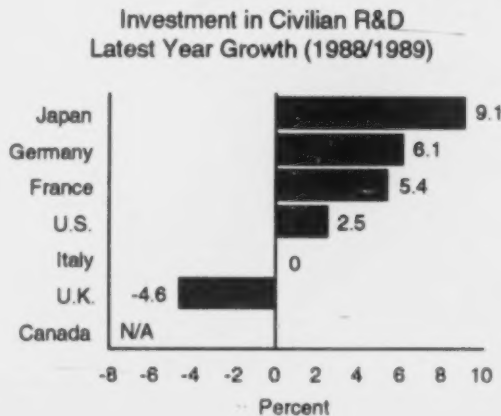
- **More tools added per worker in Japan and Canada than in U.S.** In 1972, U.S. investment per capita was 11 and 15 percent higher than that of Canada and Japan, respectively. By 1991, Canada was investing about the same amount as the United States, and Japan was investing 22 percent more than the United States.

IN PERSPECTIVE CAPITAL INVESTMENT

The U.S. investment problem is in part caused by a relatively small pool of national saving — i.e., both public (federal and state) and private (corporate and individual) sector saving combined. To give some sense of the U.S. saving problem, net household saving as a share of disposable household income in the United States was 5.4 percent in 1991, lower than in any other G-7 country. Net household saving was 14.1 percent in Japan and 13.7 percent in Germany in 1991.

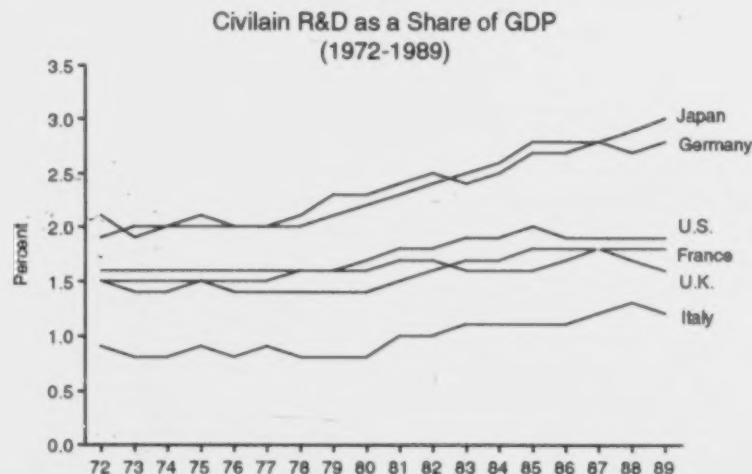
But saving is only one aspect of the larger issue of a nation's preferred system of capital allocation and the investment biases this system creates. As an example, although the 1980s were characterized by major restructuring and the removal of many obsolete facilities, much of the capital investment made over the past two decades has been focused in short-lived "hard" assets, such as computers, rather than new physical plant. The systemic biases of the U.S. process of capital allocation also explain why there was sufficient capital for large scale financial activity (such as LBOs), but a scarcity of resources for training, R&D, and other "soft" investments. For further discussion about differences in national capital allocation systems (contrasting the U.S., Japan, and Germany) and the effect on investment behavior, please see the Council/Harvard Business School report *Capital Choices: Changing the Way America Invests in Industry*.

INVESTMENT Civilian Research and Development



- **Long-term growth slower in U.S. than in Japan and Germany.** U.S. R&D spending has grown by 88 percent in real dollar terms since 1972. This is slightly less than Germany's 94 percent real dollar R&D growth and much less than Japan's 207 percent growth.

Real spending on civilian R&D declined by 4.6 percent from 1988 to 1989 in the United States. In the same year, Japan and Germany increased civilian R&D spending by 9 and 6 percent, respectively.



- **No growth in relative share of U.S. civilian R&D spending.** U.S. spending on civilian R&D has been essentially flat at 1.90 percent of GDP since 1983. This is in contrast to both Germany and Japan, which increased their allocation of resources to commercial R&D over the same period.
- **Japan hits 3 percent of GDP share for civilian R&D.** Germany and Japan each spend about one-third more of their national income on civilian R&D than does the United States. In 1989, Japan increased its spending from 2.9 to 3.0 percent of GDP, and Germany increased R&D spending from 2.7 to 2.8 percent of GDP.

INVESTMENT Civilian Research and Development

In absolute dollar terms the United States still spends more than twice as many current dollars on R&D than any other country, because the U.S. economy is so much larger than any other economy. Nevertheless, Germany and Japan's high share of R&D spending (relative to GDP) over the long-term suggests that these countries recognize the importance of R&D investment to competitiveness.

- **International comparison of R&D expenditures, by source of funds.** Over the past twenty years, industry has taken on a greater role than government in supplying funds for R&D. In 1975, government provided 51 percent of funds and industry provided 45 percent in the United States. By 1989, this ratio had exactly reversed, with government providing 45 percent and industry 51 percent of funding. In Japan, government supplied 29 percent of funding in 1975 and 12 percent in 1989, and industry supplied 55 percent in 1975 and 72 percent in 1989. In Germany, government provided 47 percent of funding in 1975 and 33 percent in 1989, with industry providing 50 percent in 1975 and 65 percent in 1989. Institutions of higher education and private nonprofit institutions provided the small remainder of R&D funding.
- **Although U.S. industry's share of R&D spending has grown relative to government, real industry spending is declining.** Preliminary data estimates from the National Science Foundation show that U.S. industry spending on R&D actually declined by 0.3 percent in real terms from 1989 to 1991.

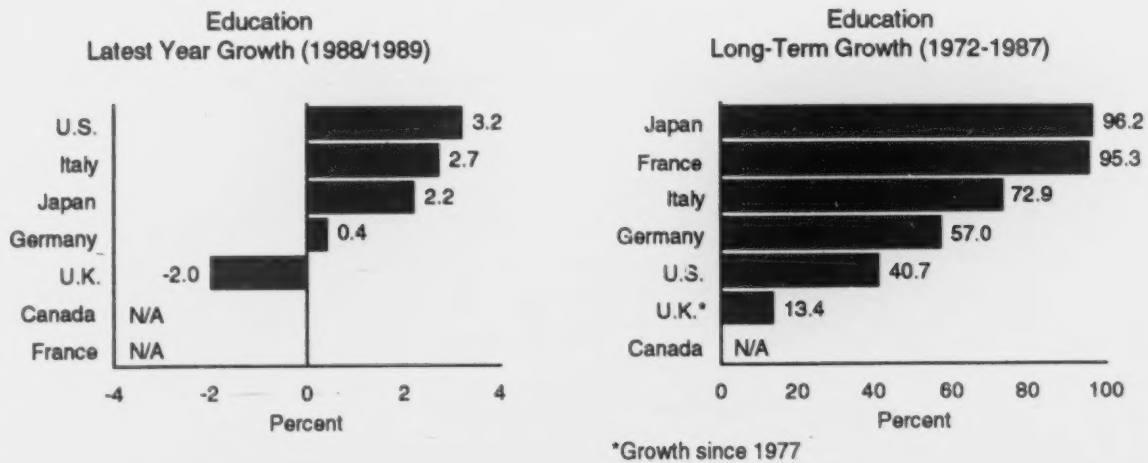
IN PERSPECTIVE R&D INVESTMENT

We focus on civilian R&D because it has the most direct impact on the private sector and because it is believed that defense R&D has become somewhat less relevant to commercial industry as the "spill over" effect has diminished in importance over time. The commercial sector is now often technologically ahead of the defense sector, and this trend will likely continue with the downsizing of the defense sector in the United States. There has been a downward shift in defense R&D spending over the past few years, but it still comprises a large share of total R&D spending: Total U.S. (including defense) R&D spending as a share of GDP came to 2.7 percent in 1989 (no change over the 1988 share). Defense R&D spending in Germany and Japan is negligible and therefore their total R&D figures are virtually identical to civilian R&D totals.

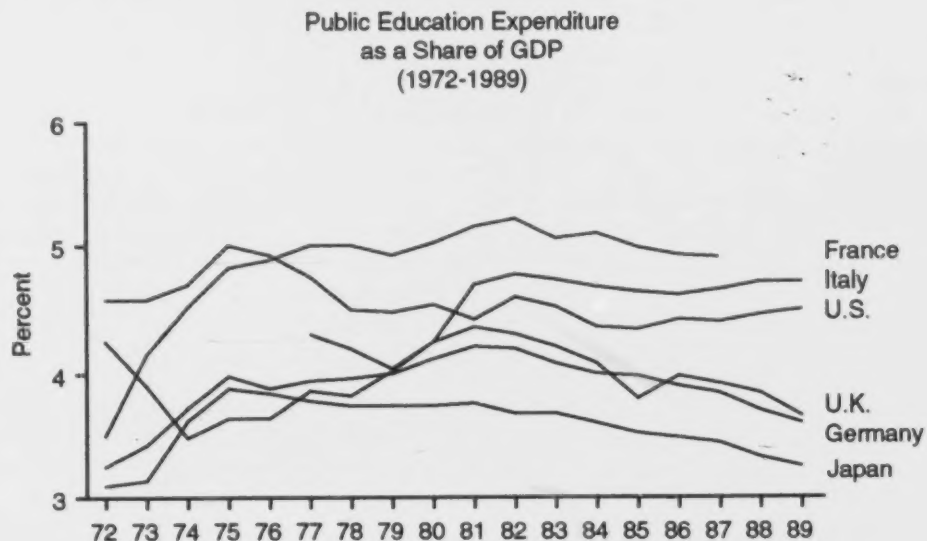
U.S. R&D spending has also traditionally shown a bias toward research rather than development. This bias has stood the nation well in terms of its ability to innovate. However, as the ability to develop commercially viable products rapidly has become essential to competitive success, "development" rather than straight research has become equally important. Several other countries have focused on development as a competitive advantage.

For more information about the impact of R&D investment and technology and a discussion on national technology policy, please see the Council report *Gaining New Ground: Technology Priorities for America's Future*.

INVESTMENT Education



- **Data shows the U.S. spends a lot on education.** International data for national spending on education is not as reliable as other kinds of data (there are significant national differences in education systems and in reporting requirements). Nonetheless, we can conclude from the data that the United States seems to invest a larger share of GDP on education than many of the other G-7 countries.
- **Relative spending trend for Other G-7 rises, stable for U.S.** Long-term growth trends show that the United States is investing less as a share of GDP than it did in 1972, whereas several other countries — France, Italy, and Germany in particular — are investing more.



INVESTMENT Education

- **U.S. real public spending on education from 1972-1989 grows at slower rate than most of competition.** U.S. real dollar expenditure on public education grew 53 percent from 1972-1989, compared with 107 percent in Japan and 88 percent in Italy. Going back to 1987 (when data for more countries is available), U.S. spending was 41 percent higher in 1987 than in 1972, compared with 57 percent in Germany, 96 percent in Japan, 95 percent in France, and 73 percent in Italy.

IN PERSPECTIVE *INVESTMENT IN EDUCATION*

Because national education systems vary so much in terms of financing (public/private financing, as well as federal/state/local inputs) and curricula (tracking versus comprehensive), it is difficult to measure both the inputs of education, as well as to assess the outcome of that educational expenditure.

It has been argued that because the U.S. school system is financed primarily through a combination of local and state funding, poorer localities and poorer states are less able to meet the educational requirements of their populations than those localities and states with a higher tax base. Inadequate funding for sufficient and modern equipment and facilities, as well as qualified instructors is a problem for many schools. When this material and manpower shortfall is aggravated by low levels of parental involvement and student exposure to harmful social environments (criminality, substance abuse, domestic violence), the job of educating a large share of America's students becomes increasingly difficult.

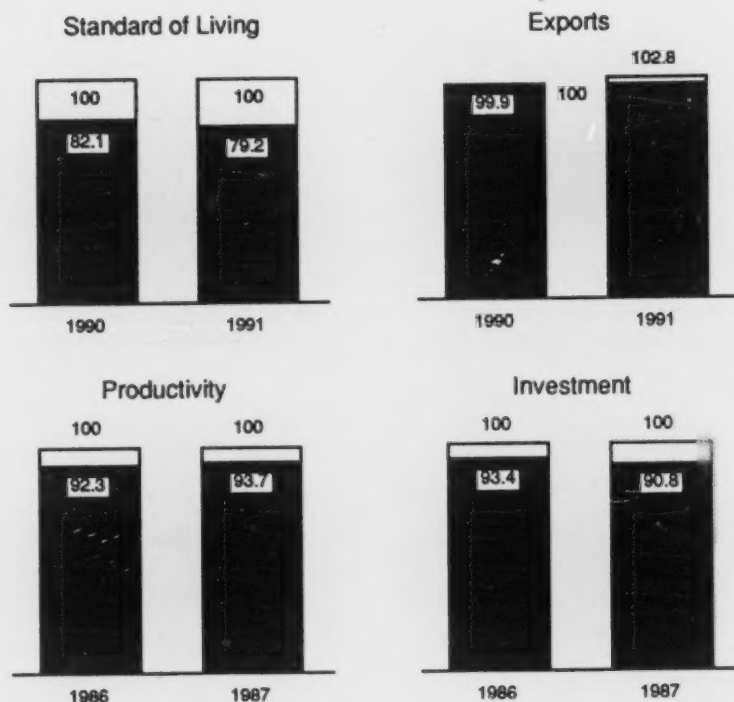
Anecdotal reports and the statistical evidence of international test score comparisons suggest that there is an output problem with U.S. investment in education. Although the best K-12 schools in the United States (and there are many excellent schools) can and do produce worldclass graduates, even these students are handicapped by the relatively short U.S. school year and the lack of demanding national standards. There is a growing understanding that the international economic playing field has become more competitive and that membership to the club of competitors requires greater flexibility and sophistication both in the workplace and in daily life as citizens. American students — both the college and the non-college bound — need to be better prepared to meet these rising and changing standards.

U.S. standards themselves may not necessarily have slipped, but the old standards are no longer high enough in this more competitive global economy. As a result, all levels of the workforce must have mastery over basic skills and some analytical abilities. Although the U.S. system is singular and admirable in the opportunities it grants for "second chances" (i.e., GEDs, later-in-life access to college or vocational training), overall, the U.S. school system seems to be shortchanging the non-college bound relative to the college-bound. There are few structured vocational work-study programs.

Over the past decade, there has been a call for educational reform. Any proposed measures for reform should include benchmarking the U.S. educational system and standards to the best in the world; providing more training in math, the sciences, and analytical reasoning; emphasizing a life-long approach to learning; and building a sense of appreciation about the material and psychological benefits of getting and building on a good education.

THE INDEX

SUMMARY OF INDEX

**Standard of Living**

- The U.S. standard of living index dropped to 79.3 in 1991, from 82.1 in 1990. The 1991 figure is the lowest ever registered and reflects the fact that the United States had the slowest over-all growth rates of all the G-7 countries over the past two decades and a relatively severe recession compared to the average for the G-7.

Exports

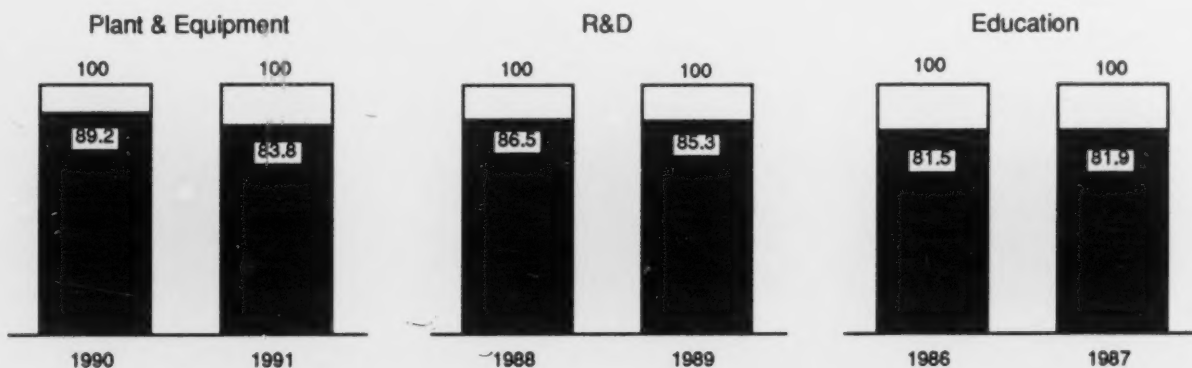
- The U.S. manufactured goods exports index rose from 99.5 in 1990 to 102.8 in 1991. This relative gain is primarily the result of a weaker dollar and a surge in exports to Mexico, South East Asia, and the Middle East. Although U.S. export performance has been strong recently, there was a severe trough in the mid-1980s. The U.S. share of world manufactured goods exports is now 12.5 percent in nominal terms, up from mid-1980s levels. Exports depend on a combination of favorable exchange rates, strong investment and productivity growth, and effective export promotion.

Productivity

- The U.S. manufacturing productivity index rose from 92.2 to 93.7 percent from 1986 to 1987 (the latest year for which data is available). U.S. manufacturing productivity picked up in the 1980s relative to the slow growth 1970s. Even though U.S. productivity has improved over the past decade, the U.S. productivity growth rate has been slower than the G-7 average since 1972, which explains why the U.S. manufacturing productivity index reading is under 100.

Investment

- The U.S. investment index registered its lowest reading in 1987, declining from 93.4 to 90.8 from 1986 to 1987. Average U.S. investment growth in plant and equipment, civilian R&D and education has been much slower in the United States than for the G-7 average over the past two decades.
- The dismal U.S. investment performance in recent years is partly the result of corporate restructuring and the getting rid of excess debt owed in the 1980s. Investment (particularly in plant and equipment and R&D) over the past two decades. The Investment Index (including all three investment indicators) grew only 8 percent since 1972, compared with the G-7 average (excluding Canada and the United Kingdom) of 19 percent.



- By 1987, the United States was investing a smaller share of GDP in plant and equipment than any of the other G-7 economies: In 1987, the G-7 average GDP share of plant and equipment investment was 13.9 percent of GDP, compared with 11.4 percent in the United States.

This trend would only become more pronounced over the next four years, with the U.S. investment index registering 83.8 in 1991. In 1991, U.S. investment as a share of GDP was 10.5 percent versus 16.5 percent for the G-7 average.

- In 1987, the United States invested 1.9 percent of GDP on civilian R&D, which was below the G-7 average (excluding Canada) of 2.3 percent. Germany and Japan each invested 2.8 percent of GDP on civilian R&D.

In the next two years, this gap between the United States and Japan and Germany would only widen. In 1989, the R&D index reading was 85.3. U.S. civilian R&D spending as a share of GDP was 1.9 percent versus 2.4 for the other G-7 average.

- The index for U.S. investment in education relative to the other G-7 stood at 81.9 in 1987, which meant that the relative share of GDP spent on education was less than in 1972, although at 4.4 percent of GDP in 1987, was still above the G-7 average (excluding Canada and the United Kingdom) of 4 percent.

The *Competitiveness Index* was developed by the Council on Competitiveness in conjunction with The WEFA Group.

Council Executive Committee member Michael E. Porter (Professor, Harvard Business School) helped develop the initial framework for the *Index*. Council Associate Andr  e C. Dumermuth produced this year's *Index*. The report was reviewed by Council President Kent H. Hughes; Council Executive Vice-President Daniel F. Burton, Jr.; and former Council Chief Economist Warren E. Farb. Allen W. Shiau (Senior Vice-President, World Service, The WEFA Group) supervised data collection at WEFA and reviewed the final report. C. Lanier Benkard (Associate Economist, The WEFA Group), generated the data. Michael A. Pass (Council Associate) generated the charts and cover design.

ABOUT THE COUNCIL

Founded in 1986, the Council on Competitiveness is a nonprofit, nonpartisan organization of 150 chief executives from industry, organized labor, and higher education who have one overriding objective — to improve the ability of American companies and workers to compete in world markets, while raising living standards at home. Among the Council's specific goals are to assist in the development of far-sighted government policies and private sector initiatives that help U.S. industry and workers compete; to promote consensus and cooperation on competitiveness-related issues within the private sector; and to increase public awareness of the linkages between America's competitiveness and its economic well-being.

The Council is governed by a 27-member Executive Committee and draws on the resources of its National Affiliates — more than two dozen research organizations, professional societies, and trade associations — to help coordinate private sector activity. The Council is privately supported through contributions from its members, foundations, and other granting institutions.

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